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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,216	11/13/2003	Peter N. Gray	BTEC 9693	8452

321 7590 07/20/2006

SENNIGER POWERS  
ONE METROPOLITAN SQUARE  
16TH FLOOR  
ST LOUIS, MO 63102

EXAMINER

ZACHARIA, RAMSEY E

ART UNIT PAPER NUMBER

1773

DATE MAILED: 07/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/712,216	<b>Applicant(s)</b> GRAY ET AL.	
	<b>Examiner</b> Ramsey Zacharia	<b>Art Unit</b> 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 May 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-68 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-68 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 6-12, 13, 23, 24, 26, 27, 29-35, 36, 46, 47, 49, 50, 52-58, and 59 are rejected under 35 U.S.C. 102(b) as being anticipated by Opperman et al. (ZA 9602517 A).

The page/paragraph numbers cited in this action refer to the English language translation of ZA 9602517 A graciously provided by the applicants.

Opperman et al. teach a gas generating device comprising a monolithic body having particulates dispersed in a plastic matrix. The particles may be sodium metabisulphite to generate SO<sub>2</sub>. The plastic may be polyvinyl chloride or polyethylene (page 7, paragraph 3). In the embodiment of Example 1, the device has a thickness of 1 mm (i.e. 1000 µm) and comprises 38 wt% polyvinyl chloride and 33 wt% sodium metabisulphite (page 10).

Regarding claims 10, 11, 33, 34, 56, 57, polyethylene has a melt index of between about 0.5 and about 8.0 and melt temperature of between about 105 and about 150 °C. Melt flow is

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reported as between 0.22 (which reads on the lower limit of about 0.5) and 6.5 and the melting point is reported as between 108-121 °C.

***Claim Rejections - 35 USC § 103***

4. Claims 14-22, 37-45, and 60-68 rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderson et al. (WO 03/018431 A1).

Sanderson et al. teach a sulfur dioxide gas generating device using in the packaging industry (page 1, lines 9-21). The device has a layer comprising a gas generating compound dispersed in a polymer matrix between a carrier sheet and cover sheet (page 3, lines 27-34). In one embodiment the device contains 0.1-0.3 kg of sodium metabisulphite per kg of polymer (page 8, lines 25-28).

Sanderson et al. are silent as to the thickness of the matrix layer in their device. However, Sanderson et al. do teach that the exact configuration of the matrix layer will depend on requirements, such as the targeted shelf or storage life, the nature of the fruit, and the cost allowed for the gas generating device (page 8, lines 4-9). That is, Sanderson et al. teach that the configuration of the matrix layer is a results effective variable and, as such, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the configuration, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2nd 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 15, 20, 21, 38, 43, 44, 61, 66, and 67, the carrier and/or cover sheets meet the limitations of these claims since they would be expected to release gas (at least through

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decomposition) upon exposure to a sufficiently high amount of electromagnetic energy, such as UV radiation, particularly since Sanderson et al. teach the use of plastics as the carrier and cover sheets (see page 6, line 11-page 7, line 7) and plastics are known to undergo chain scission upon exposure to sufficiently high levels of UV radiation.

5. Claims 3, 5, 25, 28, 48, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Opperman et al. (ZA 9602517 A) in view of Aamodt et al. (U.S. Patent 6,325,969).

Opperman et al. teach all the limitations of claims 3, 5, 25, 28, 48, and 51, as outlined above, except for the presence of a second compound that generates chlorine dioxide.

Aamodt et al. teach that chlorine dioxide gas is useful for killing biological contaminants, such as fungi (column 2, lines 37-41). The chlorine dioxide may be formed from a composition which absorbs water from the air and releases chlorine dioxide over time (column 2, lines 42-49).

One skilled in the art would be motivated to use a combination of the gas generating solids of Opperman et al. and Aamodt et al. in the device of Opperman et al. because both produce gases upon exposure to water that act as fungicides. It has been held that it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose. The idea of combining them flows logically from their having been individually taught in the prior art. See MPEP 2144.06.

***Response to Arguments***

6. Applicant's arguments filed 03 May 2006 have been fully considered but they are not persuasive.

Regarding Sanderson et al., the applicants argue that Sanderson et al. do not describe monolayer articles having a thickness between about 5-1000  $\mu\text{m}$ . The applicants argue that, although the gas releasing polymeric articles may be optionally combined with other films, substrates, fabrics and the like to produce multilayer films, the articles are fully functional as a single article.

This is not persuasive for the following reasons. First, while Sanderson et al. are silent as to the thickness of their matrix layer, there is an explicit teaching that the configuration of the matrix layer is a results effective variable. Therefore, it would be obvious to one skilled in the art to optimize the configuration of the matrix layer. Second, no claims directed to a monolayer are rejected over Sanderson et al.; the claims rejected are all drawn to multilayer films as taught by Sanderson et al. If their are properties required by the gas generating layer in the bi- or multilayer article that differentiate the claimed gas generating layer from that of the prior art, these properties should be recited in the claim. Reliance on the preamble term "monolayer" is not sufficient to overcome the rejection since the preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Regarding the rejections over Opperman et al., the applicants argue that Opperman et al. do not teach or suggest a gas generating article comprising between 30.0-99.9 wt% of a first polymer and 0.1-70.0 wt% of a gas generating solid having a thickness of between about 5-1000  $\mu\text{m}$ . The applicants state that the sheets of Opperman et al. must have a thickness of at least 1 mm, with thicknesses of 2 and 3 mm preferred, and argue that this is a teaching away from the present invention.

This is not persuasive for the following reasons. Opperman et al. do teach an article comprising between 30.0-99.9 wt% of a first polymer and 0.1-70.0 wt% of a gas generating solid having a thickness of between about 5-1000  $\mu\text{m}$  as evidence by at least Example 1 which has a thickness of 1 mm (i.e. 1000  $\mu\text{m}$ ) and comprises 38 wt% polyvinyl chloride (which is between 30.0 and 99.9%) and 33 wt% sodium metabisulphite (which is between 0.1 and 70.0%). Moreover, this composition reads on the claimed monolayer article which consists essentially of between 30.0-99.9 wt% of a first polymer and 0.1-70.0 wt% of a gas generating solid because for the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" is to be construed as equivalent to "comprising." See MPEP 2111.03. Additionally, the incorporation of a plasticizer does not appear to affect the basic and novel characteristics of the invention as evidenced by the instant specification, which explicitly permits the incorporation of a plasticizer into the monolayer composition (see paragraph 0071 on page 22 and paragraph 0095 on page 29). Finally, it is noted that Opperman et al. do not require that their sheet have a thickness of at least 1 mm. Rather, paragraph 6 of page 4 merely describes a preferred embodiment wherein the thickness of the sheet is in the range of 1 to 3 mm. Opperman

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et al. explicitly teach that the thickness of the device is a results effective variable that influences the SO<sub>2</sub> release rate (see paragraph 3 of page 8).

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney, can be reached at (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Ramsey Zacharia**  
**Primary Examiner**  
**Tech Center 1700**